
V. *Observations on the Crepitaculum and the Foramina in the anterior Tibiæ of some Orthopterous Insects.* By the Rev. Lansdown Guilding, B.A. F.L.S.

Read June 7, 1825.

OF the organs possessed by the insect tribes, none merit diligent examination more than those which are connected with the production of sound. The structure of most of them is well known at the present day, and has been elucidated by accurate figures. Some, however, require further explanation. I shall briefly notice one insect, and describe its crepitaculum, and the tibial foramina of two orthopterous genera*.

The subdiaphanous horny apparatus at the base of the wings of the male *Locustæ* and *Achetæ* has long since been observed to be the *instrumentum stridoris* by which the mute female is invited by the male to celebrate their nuptials; but the peculiar and admirable structure of the part has not been shown in a satisfactory manner by the engraver. In different species it varies greatly, but in the one I shall notice it is exceedingly complete. On the horny base of the left hemelytron, beneath, a strong ridge projects, which is furnished with hard and regular teeth: on the right one, a bony process is placed, so as to act on the serrated

* Drawings of the several parts, by the author, are deposited in the collection of the Society.

projection of the hemelytron which lies above it; and it is by rubbing the one over the other that the loud or shrill sound of most orthopterous insects is produced.

One species, *Locusta camellifolia*, whose call (resembling the words *shock—shock* slowly and loudly repeated) may be heard in the stillness of the night at the *distance of a mile*, has often astonished the inhabitant of Europe on his arrival in the tropical regions. It is hardly possible to contemplate a more extraordinary scene than one of our valleys by the light of the moon, decorated with the shining foliage of waving palms, and lighted up by thousands of luminous Coleoptera, which flit in every direction before our eyes; while the grasshoppers, in company with the *Hylæ* and *Tettigoniæ*, perform their deafening concert. In this most interesting species the wing-cases are admirably adapted to increase the sound, being deeply concave in the male, even the wings are closely pressed by the arched pterigostia against the walls of the hemelytra, leaving a considerable space vacant above the abdomen.

The other organ to which I wish to call the attention of entomologists, (and which was first noticed, I believe, by De Geer,) is situated on the anterior tibiæ of both sexes in such of the orthopterous insects as possess the crepitaculum or tympanum at the base of the wing-cases. In the Fabrician *Locustæ* it consists of two approximate suboval open foramina, gibbous at the sides: in his *Achetæ*, of two opposite oval flattened openings, closed by a delicate membrane. In the true *Grylli*, whose organ of sound (noticed by Kirby in his *Introduction to Entomology*, vol. ii.) is very different in its structure and position, these openings are wanting.

I have no means in this distant country of examining the genus *Pneumora* of Thunberg, the species of which are remarkable for
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the sounds they produce; but they probably present a similar conformation of the anterior tibiæ*.

It may not, perhaps, be improper in this place to mention a curious apparatus (*penicillus*) in the anterior tibiæ of nocturnal Lepidoptera, especially of the *Sphingidæ*, though given for a very different purpose. It varies much in shape and size, but is generally an elongate velvet pad, and is used to brush and clean the large eyes of the animals of this order.

St. Vincent, Jan. 5, 1824.

* On examining several species of *Pneumora* in the Society's collection, the foramina alluded to by Mr. Guilding cannot be detected. In this genus the organ of sound is not situated at the base of the elytra, but on the sides of the abdomen, as pointed out in the 3rd edition of the *Introduction to Entomology*.—[Note by the Secretary.]